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WHEAT FIELDS OF THE NORTHWEST.

IN the summer of 1879 a number of agricultural meetings were held in different parts of England to consider the influence of American competition on the price of wheat—a subject which the farmers and land-owners were then learning to regard as one destined to receive more anxious consideration from them than any other of a political nature. At one of these meetings Lord Beaconsfield, in the course of an address, is reported to have said that supremacy as a grain-growing country would soon be attained by Canada, and that with this expectation thousands of persons from the States were hastening to change their homes to the other side of the boundary line. This statement, brought into general notice on this side of the Atlantic at the time by the eminent position of the speaker, was held plainly to lack trustworthiness; and our press, having simply compared the quantities of wheat raised in the year preceding by the two countries assumed to be rivals, and having proved that the movement of immigration between Canada and the United States was in favor of the latter, deemed further refutation unnecessary. But the editors of our press, in common with other persons, do not at present appreciate that part of the United States which lies west of Lake Superior, and it may be doubted if it is generally known further than as a country the failure of which to sustain the Northern Pacific Railroad project was the harbinger of the unwelcome financial crisis of 1873, and now more lately as the location of several noted wheat farms conducted on a gigantic scale; whilst hardly so much could be told of the larger and more valuable portion of this land, distinguished throughout its extent by certain peculiarities of soil and climate, which lies north of the boundary line, and forms the new provinces of Canada. However, this country has the elements to support

E. S. Atlantic
Monroe
Sept 8,

the most prominent, if it is established into the same the farming

The Red River flows in the larger river, Minnesota and Canadian prairie discharges into it. The prairie discharges into the tributaries of the river, and, spring is the beginning of the tile land which is the belt to the Red River by the Saskatchewan north by the Canadian. This Canadian has 150,000,000 acres, probably be found when a thorough made by the land has a latitude and what may lie distant or mate, however that found in corresponding. The isotherm of Hudson Bay is decidedly to the temperature of the but little from the valley of out the country in April, or fully is sown in the summer is not dian corn, and permits no that is a cold one, of the grain States of to this fact, do of the cereals railway construction enough in the trance to this masters which pioneer lines gration. Three Since that time in no other part it gone forward been attended in the Red River

the most prosperous people on the continent, if it is not destined soon to put the established districts of our grain supply into the same position as they have put the farming lands of England.

The Red River of the North rises near the head-waters of the Mississippi, but flowing in the opposite direction to the larger river, forms the boundary between Minnesota and Dakota, and entering the Canadian province of Manitoba, finally discharges itself into Lake Winnipeg. The prairie drained by this river and its tributaries contains, roughly, 40,000,000 acres, and, speaking from our stand-point, is the beginning of the vast section of fertile land which, stretching in a widening belt to the Rocky Mountains, is drained by the Saskatchewan rivers, and further north by the Athabasca and the Peace. This Canadian division contains certainly 150,000,000 acres of land, and may probably be found to include 250,000,000 acres when a thorough survey shall have been made by the Dominion government. The southern limit of this section of fertile land has a latitude as high as that of Montreal, and what may be called its northern limit lies distant one thousand miles. The climate, however, differs essentially from that found in Eastern British America at a corresponding distance from the equator. The isothermal lines, as they approach Hudson Bay from the Pacific Ocean, bend decidedly to the south. The mean temperature of the Peace River Valley varies but little from the mean temperature of the valley of the Red River. Throughout the country wheat may be planted in April, or fully as early as spring wheat is sown in the United States. But as the summer is not warm enough to ripen Indian corn, and the winter, while it lasts, permits no thaw to take place, the climate is a cold one, compared with that over the grain States of the Mississippi Valley; and to this fact, doubtless, the superior quality of the cereals raised here is due. In 1872, railway construction had, extended far enough in the Northwest to afford an entrance to this new territory. But the disasters which speedily overtook the two pioneer lines stopped at once all immigration. Three years ago it was resumed. Since that time, it may be safely asserted, in no other part of the United States has it gone forward with so much vigor, and been attended with so much prosperity, as in the Red River Valley. The towns of

Fargo and Grand Forks in Dakota, and Winnipeg across the border—the country around them presenting no resources except a prolific soil—exhibit a growth as rapid, and commercial transactions as heavy, as cities which have sprung up in the richest mining districts of the Rocky Mountains. Intense as the character of the immigration has been, it has not yet exercised any disturbing influence on the grain market. The part of the land reclaimed is comparatively trifling. At various points in the valley farms have been laid out, and fields of wheat, some of which are thousands of acres in extent, have been cultivated, but the greater part of the land is still an unbroken prairie, without a trace of settlement. The immigration into the valley of the Red River, and the smaller immigration into the valleys of the Saskatchewan, have been of most importance in proving that this country produces the cereals in a state of perfection which has not manifested itself further south—a result possibly to have been anticipated from its latitude and soil. In a climate warmer than is needed to bring it to maturity, wheat shows an imperfect development of grain, with a deficiency in weight. It is always more subject to drought, the hot sun acting both to evaporate moisture from the ground and to burn the plant afterward. The same facts are observable in the growth of other cereals. Even grass shows a marked change in value made by latitude. Many of our stock-raisers in the Southwest do not sell their cattle in Texas or New Mexico, but drive them from the coarse and poor vegetation there to feed on the sweeter and more nutritious grasses of Montana, the increased price which the cattle bring in their improved condition paying for a drive of fifteen hundred miles.

The superior quality of the wheat raised in this new country will be best shown by a comparison made in figures. Duluth and Chicago are selected to furnish a comparison, as the former is the general point of shipment of the northern wheat, and the latter is the place of largest receipts in the grain States further south. To explain the use of the figures below, it may be noted that, for the convenience of trade, on arrival at one of the larger places of receipts, grain is inspected by experts who are public officers, and graded according to its soundness and weight. The difference in market value between the grades

is considerable. Take for the purpose the crop of 1880. During the last three months of that year there were inspected at Duluth 1,778,764 bushels of wheat. Leaving out of consideration the fraction 86,000 bushels, which were of the soft variety, and, it is assumed, came to this port from southern counties of Minnesota, the wheat graded as follows, the amounts being expressed by per cent.:

AT DULUTH.	
Grade No. 1, Hard	87 per cent.
Grade No. 2	11 "
Grade No. 3	1 "
Rejected	1 "

During the same months there were inspected at Chicago 1,571,262 bushels of winter wheat, and 7,988,816 bushels of spring wheat, which graded as below:

AT CHICAGO.	
Winter Wheat.	Spring Wheat.
Grade No. 1. . . 1 per cent.	Grade No. 1. . . 1 per cent.
Grade No. 2. . . 53 "	Grade No. 2. . . 66 "
Grade No. 3. . . 34 "	Grade No. 3. . . 23 "
Rejected . . . 12 "	Rejected . . . 10 "

As to the respective market values: at the city of Buffalo, where the northern and southern grain, coming over the lakes from Duluth and Chicago, first meet in a general market, the following were the average prices per bushel during the months mentioned above:

No. 1, Hard Duluth.	1.18
No. 2, "	1.16½
No. 1, Red Winter. . . 1.14	No. 1, Spring . . . 1.13½
No. 2, " . . . 1.11	No. 2, " . . . 1.08
No. 3, " . . . 1.06	No. 3, " . . . 0.95
Rejected " . . . 1.00	Rejected " . . . 0.80

The southern grown wheat may have in the future, it is probable, a still lower relative value. It alone has been used for export to foreign countries, whose mills were not adapted for grinding with the best results the hard Manitoba wheat, even if the production of the latter were large enough to bring its merits into notice. Now, however, that the improved methods of milling employed at Minneapolis are being introduced into England, with an increased supply of hard wheat, there will doubtless come the same preference as exists in this country for a grain having its special properties. These improvements in milling have had a most important bearing on the value of all the varieties of hard wheat. The secret of the higher price which the Duluth wheat commands over the best grades from other localities is the fact that it makes a flour of

greater strength. The northern wheat is flinty, and contains more gluten; the southern is soft, and contains more starch. Until lately, however, the farmer in Northern Minnesota found that his grain, although by an analysis of its parts the most valuable, brought the lowest prices paid in market, because, with the method then used for separating bran from the middlings, it made a dark-colored flour. A few years ago the defects were remedied by the millers at Minneapolis, and so successfully that their method of treating wheat has been very generally adopted throughout the country. The result has been that the strong flour made of Red River wheat is quoted at a price of two dollars per barrel over other kinds—a difference which the baker is willing to pay, because from a given number of pounds it makes the greatest number of pounds of bread; and the private consumer is willing to pay, because it furnishes the most nutritive food. The hard Northern wheat, instead of being the lowest, has taken its rightful place as the highest priced on the list of grain.

The land is also more prolific. The experience of the wheat-raisers in Manitoba has now been of sufficient length to make understood some of the natural advantages extended to this country for returning large and certain crops. Situated in a high latitude, there is afforded to vegetation a greater number of hours of sun each day during the entire season of growth. The winter cold, continuous and with light falls of snow, freezes the ground to an extraordinary depth. Under the disintegrating power of frost, the lower soil is broken up each season for the sustenance of plants as thoroughly as if done by the best artificial means. This is not the only service performed by the frost; later, throughout the period of growth, it keeps within reach of the roots a moisture which renders drought impossible. But most noteworthy is the soil itself—an alluvial black loam, with an average depth of twenty inches, resting on a subsoil of clay. It is very heavy, when wet having a tar-like consistency, and rich in the elements which are believed to nourish vegetation. Dropped into this soil, with the other favoring circumstances, seed springs up and grows with an extraordinary vigor, and gives a sound and abundant crop. The average yield of wheat per acre in the Red River Valley, north of Fargo, where

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the soil becomes heavier and more characteristic, is twenty-three bushels. In Manitoba and the Saskatchewan region the average is greater, and amounts to twenty-eight bushels. These facts become more striking when compared with results in the district of the wheat supply at present. In Illinois the average for wheat to the acre is seventeen bushels; in Iowa, ten; in Wisconsin, less than ten; in Kansas, ten; while in Texas it is eight and one-half bushels. Nor does the land seem to deteriorate under a course of cropping, as does the lighter soil of States in the south. In the early part of the century, Lord Selkirk, fascinated by the resources which he beheld in the Lake Winnipeg region, formed the idea of developing them with colonists from his country. Shut off from any market for their grain, and located in a spot at that time practically inaccessible, the Highlanders who came over in accordance with the ill-considered plan of Lord Selkirk were subjected to a great deal of hardship. But many families staid. The town of Kildonan, near the mouth of the Red River, started by these colonists, has been occupied by them and their descendants ever since. By their farming the powers of the soil have been pretty thoroughly tested. In this settlement there are fields which have been sown to wheat every season for the last thirty-five years without the application of any fertilizers, and which in 1879 yielded an average of over thirty bushels to the acre. A soil which raises one grain in such perfection is, of course, suitable for other purposes. Stimulated by the presence of buyers for the mills making the high-priced flour, who offer immediate payment for all their crop, the farmers have so far devoted all their energy to increasing their acreage of wheat. But the other cereals—oats, rye, and barley—sown to supply local needs, show a like abundant yield, and when brought to outside markets these products of northern soil will be found entitled to the high estimation accorded to the present staple.

Of equal importance with the natural resources here is the means of getting the products to market. In the United States the importance of this question will be fully appreciated, and it becomes a matter deserving attention when directly at our doors a large body of land of unusual fertility is being invited to compete in mar-

kets which have been opened to us by an efficient system of transportation, and found very profitable. Apart from any question of loss or gain to the trade of the United States, the subject itself presents many features to excite an interest. The scheme of the roads for traffic at present is so little complicated as to be readily understood. The projects now under way are to cost vast sums of money. Their completion will present much that is novel in the systems of the continent. On the American side, the Northern Pacific Railway, at the end of 1880, had built west of the Rocky Mountains a section of 150 miles, beginning at a point 260 miles from the terminus on Puget Sound, and extending eastward. During the year they had pushed westward the main road from Duluth to the Yellowstone River in Montana. By the collapse in 1873 the company were left with a very poor credit, and to continue their work they have been obliged to rely mainly on the earnings of the completed part and the proceeds of the sale of the land grant. The progress made since that time toward completing the transcontinental line illustrates the rapid way in which this country has of late been developing. The construction last year was 360 miles of new road. Recently measures to secure money for continuing the work as fast as it may be required have been successfully taken, and it is believed that the line from Lake Superior to the Pacific Ocean will be finished in 1883. As a terminus, the port of Duluth has hitherto been sufficient during the season of navigation, which lasts, however, only six months. During the remainder of the year grain is left to go eastward by rail transportation around the southern end of Lake Michigan. This lake has been the means of shutting off the Northwestern States from any direct land communication with the East. North of Chicago there is not at present a single line of railway from the prairies. The States of Wisconsin, Iowa, Minnesota, and the adjoining portion of Dakota are covered with iron roads, but they are all tributary to the Eastern system at the head of Lake Michigan—a fact which sufficiently accounts for the steady and rapid growth of the city at that point. The presence of Lake Michigan and Lake Superior, and the character of the country north and south of the latter, which is hilly, and abounds in immense ledges of rock, render

direct rail connection of the Red River territory with the East a difficult and expensive matter. But the development of resources which are so valuable and complete will doubtless in time create an extensive system of rail communication, which shall form the shortest possible routes to the sea-board, and be free of the charges at an intermediate point of distribution. The construction of two lines, one along the south shore of Lake Superior and the other on the north shore, has been definitely decided upon, and work on the first line has been begun. The Northern Pacific Railway is now engaged in building a road from Duluth eastward to the charter terminus at Montreal River. From this point a road, part of which is finished, is to be extended to Sault Ste. Marie. Here a combination of Canadian railways is to give communication with Montreal and New York. The distance from the Red River to New York by this route, when completed, will be at least two hundred miles shorter than by the expensive one through Chicago. Another railway, the St. Paul, Minneapolis, and Manitoba, located at right angles to the line of the Northern Pacific, extends from St. Paul, on both sides of the Red River to the international boundary, where it is met by a branch of the Canadian Pacific. This road carries a large part of the wheat raised in the Red River Valley to the mills at Minneapolis, and until the present time has furnished the only adequate means of entrance to the province of Manitoba. By the construction of 230 miles in 1880 this company now owns nearly one thousand miles of road, and its extensions westward bid fair to make it equally active with the Northern Pacific in developing this country.

On the Canadian side, Hudson Bay may eventually become of the first importance as an outlet for foreign shipments of grain. The bay is free of ice, and its southwestern harbors are open fully three months—a short season of navigation, but sufficient for a sailing vessel to clear with two cargoes for Liverpool, which ships carrying grain from California around Cape Horn can not accomplish, taking the entire year. But it may be doubted whether the hope of utilizing this short road to Europe will be realized for a considerable time. At York Factory, the Nelson, a river flowing from the lakes of Manitoba, empties into the bay. Surveys have lately been made

to locate a line for a railway down this river from the city of Winnipeg. The want of material to provide this road with local traffic, and the brief period during which the Atlantic port, its proposed terminus, is accessible, would probably deter private enterprise from undertaking its construction until the surplus of grain in Manitoba had become much larger than it is at present, and a sufficient number of vessels for the Hudson Bay trade could be assured to move accumulated freight at York Factory. The river Nelson itself is not now navigable. Improvements in its channel would give a depth of water sufficient for vessels of large draught to pass through to the lakes above, and other natural obstacles are not so great as to render its future navigation improbable. But until the completion of other schemes for promoting trade in their new territory, which are now being carried out at great expense, it is hardly to be thought that the Canadian government will attempt improvements in the Nelson, or the construction of the Hudson Bay railroad, more especially as the success of these would tend to weaken certain direct benefits to the old provinces which the present plans of internal improvement are expected to bring.

The old route for inland navigation through the great lakes is now being subjected to changes which promise to establish it as a way for ocean vessels to reach inland ports with certainty, and to change materially its status as a means of communication between the interior and Atlantic sea-board. When the plan of enlargement has been fully carried out, the Welland Canal will admit steamers of two thousand tons, and drawing thirteen and one-half feet of water. Work on the first enlargement has now advanced so far that it is expected the canal will be opened to navigation this season. Upon the completion of improvements corresponding to this in the St. Lawrence, vessels drawing eleven and one-half feet of water will be able to load at Chicago, and sail through this river to Montreal, or directly across the Atlantic. The outlay of \$30,000,000 on the Welland Canal, however, has not had as its object chiefly the American trade of Lake Michigan, but it has been in accordance with the comprehensive policy of the Canadian government for the development of their Northwestern territory, and for keeping within national lines the

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right to handle its valuable products. The money expended by the Dominion on internal improvements is nearly ready to yield its return. On the north shore of Lake Superior, one hundred miles northeast of Duluth, the pioneer railway, now almost finished, to connect the Canadian prairies with the water route to the Atlantic, terminates at the lake. Its starting-point is the city of Winnipeg, on Red River.

The Canadian Pacific road, of which this is the Lake Superior section, is to form a transcontinental line in British America, and may in time become the most important of the railroads to the Pacific. Its construction was a measure taken by the government, by whom the existing parts have been built. At a session of Parliament the present year, however, it was decided to intrust the construction to a private company, who are obliged to preserve the full route adopted by the government. Great as will be the facilities offered at the eastern end of this road for transporting grain to the seaboard by way of Lake Superior, the Dominion government has taken care to secure the construction of one overland route from the new provinces. The road from Winnipeg to the lake terminus at Fort William is to be extended on the north shore to the town of Callander, near Montreal, and to a union with the railway system of the old provinces. The extension was to be begun the present summer. From Winnipeg westward the road is to traverse the full length of the Saskatchewan prairie, and cross the Rocky Mountains to an ocean port near the United States border. The section through the prairie to the foot of the Rocky Mountains it is expected to have ready for traffic within three years. This briefly is the main line of the Canadian Pacific Railway. When completed, the distance from the Pacific Ocean overland to Montreal will be 2960 miles, or about 500 miles less than the distance by the Union Pacific road to New York.

The larger yield to the acre, the better quality, and higher grade of crop shown in this Northern country, are matters lifted by the vast extent of the land above a question of individual profit to the persons now cultivating the soil. If one-half the ground of that comparatively small portion which is drained by the Red River and its affluents were sown to

wheat, the product at an average yield would be 500,000,000 bushels, or more than the entire amount raised in the United States in 1880. The attention of the United States within a few years will certainly be drawn sharply to the supply of grain coming from this new quarter, if the reclamation of land goes on with its present movement. With the advent of a system of inland navigation greatly improved, and made the most perfect in the world, indeed, there is every reason to believe that the development of the interior will continue at its present rate, and even go forward with a rapidity never witnessed before. An immense amount of money is ready for employment. By the Canadian government and railway companies the news of these unsettled fields will be spread among the populous countries of Europe. A populous country lies directly adjoining. The land itself, level and rolling prairie, will allow railways to be built with the utmost rapidity and cheapness, and furnish no obstacle to cultivation. Scattered plentifully throughout Dakota and the valleys of the Saskatchewan are beds of the soft coal which has supplied the fuel of our Western States. That necessity, iron, is not lacking. The extensive region north of Lake Superior is known to be rich in this ore. In 1880, from the mines on the south, at present the more accessible shore of this lake, were taken 1,900,000 tons of easily worked ore, which had a value of \$13,000,000.

Within ten years it is certainly possible that there will be ready for shipment at the edge of Lake Superior an amount of wheat which shall equal the total quantity now received yearly at all the Atlantic ports, at a price of seventy cents per bushel. Low as this price would be, compared with prices heretofore prevailing at the lakes, southern-grown wheat of the average quality would be worth ten cents a bushel less. Wheat can be raised in the Red River Valley and delivered to the railroad at a cost of less than forty cents to the bushel. Fifteen cents more, the rate for transportation to the lake from Fargo, which will probably be the rate also from Winnipeg over the Canadian Pacific, deducted from the price above, leaves remaining a high profit to the grower. This is in the Red River Valley, and with a yield of twenty-three bushels to the acre. With a yield of

twenty-eight bushels, the increase would pay cost of transportation from far within the territory of the Saskatchewan.

What will be the effect on agriculture in the United States of this tremendous addition to the wheat land, and on present routes of traffic of a division in a valuable trade, it is impossible to foretell, and without the scope of this article to consider. That it will exercise some influence on our agriculture can not be doubted. Wheat could not now be raised in the Mississippi Valley at the price supposed above. The land of the United States has no longer the richness of unbroken ground; at least, very generally throughout its extent the best parts have been tilled. There is a wide margin for profit left in higher and more laborious cultivation of the soil. This, however, is not the method to which we have been trained. Hitherto our crops have been increased by cultivating new land. A course of giving more attention to the

plants, notably Indian corn, for whose cultivation we have special advantages, it may be found expedient to follow. On the other hand, a decided fall in the price of the other cereals would probably affect maize also.

However uncertain may be effects on the United States, we may expect that the centre of activity in wheat, never very stable, will soon pass to the Red River Valley; to go later, possibly, still further northward. Most valued by the farmers in Minnesota for seed is the grain coming from the Red River Valley, and especially that from Manitoba. Taken southward, if not renewed frequently from the original source, it tends to degenerate, and become soft. Harder and better still is the wheat coming from the region of the Upper Saskatchewan and the Peace River. This perfect grain has the greatest weight of all, and by cultivation even in the Red River Valley shows a loss of its original quality.